DOCUMENT RESUME

ED 458 660 CS 510 674

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TITLE "I Don't Think They Even Exist!" Teaching CMC through CMC: Experiences from a Cross-University Computer-Mediated Communication Class.

PUB DATE 2000-04-00

NOTE 23p.; Paper presented at the Southern States Communication Association Convention (New Orleans, March 30-April 2, 2000).

PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS *Computer Assisted Instruction; *Computer Mediated Communication; *Cooperative Learning; Course Descriptions; Higher Education; *Intercollegiate Cooperation; Reflective Teaching; Theory Practice Relationship

IDENTIFIERS Rensselaer Polytechnic Institute NY; Teaching Perspectives; University of Kansas

ABSTRACT

This paper focuses on a cross-university computer-mediated communication class which was taught during the spring semester at the University of Kansas (the other campus was at Rensselaer Polytechnic Institute in New York). The paper's first part briefly introduces the class design including set-up, assignments, and topics covered. The second part looks at the class as a learning experience and discusses some computer-mediated communication (CMC) related issues that developed through interaction in the class, such as computer-mediated collaborative learning, media richness theory in application, and identification issues. The paper closes with a personal reflection on teaching CMC through CMC. Contains 23 references. Appended is "Lessons Learned from Group Project 1." (NKA)

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ED 458 660

Southern States Communication Association Convention
New Orleans, March 30-April 2, 2000

Instructional Development Division

"I Don't Think They Even Exist!"

Teaching CMC Through CMC: Experiences from a Cross-University Computer-Mediated Communication Class

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CS 510 674

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Teaching CMC via CMC –

Experiences from a cross university computer-mediated communication class

The day came when Eric[1] voiced a concern that would haunt us for the rest of the semester: "I don't think they even exist. I don't think there are any other students at RPI. I think Joe [Walther] is just making this all up. He's probably sitting at his computer right now writing some of these weird emails, trying to create problems to see how we are going to react to that." - "More likely NOT writing any emails in return!" Adam joked, referring to the often unexplained silence the University of Kansas students had gotten as sole response from NY.

This short exchange was typical for animated class discussion during the computer-mediated communication class taught during the Spring semester 1999 at the University of Kansas. The following paper has two parts. The first part briefly introduces the class design[2] including set-up, assignments, and topics covered. The second part will look at the class as a learning experience and discuss some computer-mediated communication (CMC) related issues that developed through interaction in this class, such as computer-mediated collaborative learning, media richness theory in application, and identification issues. The paper closes with a personal reflection on teaching CMC through CMC.

COMS 560 – COMPUTER-MEDIATED-COMMUNICATION

Class Design and Logistics. The idea of creating a cross-university computer-mediated communication class was first developed by Joe Walther, then at Northwestern University. His first trial involved the University of Manchester in the United Kingdom. Spring 1999 a second

[1] Student names have been changed to protect the students' privacy.

trial took place between the Rensselaer Polytech Institute and the University of Kansas. Joe Walther was overall responsible for the class and supervised 12 students at RPI. Howard Sypher fronted for the KU side, but the 16 students were supervised and instructed by me, then a first year doctoral student.

Walther visited KU twice, once for the first meeting of the semester, and once around midterm time. The students were clearly instructed about the intended course design. First, the students should think of this class as one class at two different campuses. Every project would involve people from both universities. Teamwork would be essential, as would be continuous participation. The students were advised that along the way they may experience certain media- and situation stimulated frustration. They should expect that and remember that taking action would be the most effective way to overcome these difficulties. Also, the students agreed to participate in small research studies throughout the semester, which consisted in completing a questionnaire after each major group project. The knowledge about this ongoing research activity most likely was responsible for the above described reaction shortly after Spring Break.

The classes met twice a week, but not synchronously. Tuesdays were lecture and discussion days. Students had to prepare readings for these days during which issues developing from technologies were discussed. These issues included: Types of CMC effects, Organizations and communication technology, Managers' choice of media, Group dynamics and decision making, Health communication, Listservs, Virtual community, Norms and flaming in Usenet news, Social support in Usenet groups, Identity and netplay, Interpersonal relations, and Multimedia spaces. Thursdays were laboratory days on which students were acquainted with software and technology applications such as FirstClass, MS Word editing tools, MOO,

[2] For more information please contact Joe Walther (walthj@rpi.edu) at the Rensselaer Polytech Institute in Troy, NY, who designed the class.

NetMeeting, Chat, Lotus Notes, Group decision support systems, Listservs, AlphaWorld, Usenet news and support groups, and CUSeeMe.

Course Projects. Students had to complete numerous assignments throughout the semester. Each single one of these involved the other campus. For each week and each assigned article or chapter, a number of students on both campuses were assigned to write either a critique or a review. By a Thursday deadline for readings assigned for the following Tuesday the reviews and critiques had to be submitted to Walther and me, and to two coordinators, one from each campus. These coordinators worked together to create one synopsis, which had to be submitted by Monday noon. The quality of the synopsis usually depended on the quality of the reviews and critiques. Through this exercise students were forced to prepare their readings, but also learned to prepare and plan in a timely manner, because coordinating via CMC takes much longer than coordinating face-to-face (FTF).

In addition, students were assigned in changing groups from three to five members and had to write two shorter papers. They were provided with the topics (Topic 1: "How do managers choose media?"; Topic 2: "Virtual community"), the readings and some leading questions. Coordination, dividing of the work etc. was up to the students.

Finally, students could form their own groups for final term paper projects. Again, groups were held to three to five members. The group now was responsible for finding appropriate research articles to their chosen topic. This term paper was due at the end of the semester en lieu of a final exam. Students decided on the following term paper topics: Chats and avatars, Online romance, Virtual learning, Gender-bending on the Internet, Telemedicine, Social support.

Teaching. The teaching situation for the KU students was very special. The main professor was 1500 miles away. The KU teacher of record rarely visited the class, and the students' real instructor in this senior level class was a first year doctoral student. At the beginning of the class students showed concern for their grades due to this unique situation. They were worried that Joe Walther would on occasion assign them lower grades, simply because he was not physically present. Problems were always discussed by email, but the students argued that even a regular email exchange could not replace actual observation of the efforts students put into their preparation and assignments. After a few weeks however, the KU students finally grasped what I had been trying to tell them for several weeks, namely, that their grade would be assigned by me, not by Walther. From then on students were much relieved about their grades and began to see me more as an equal to Walther.

Preparation of each class meeting took a lot of work on the teacher side. Personally, I have received and written a total of 681 messages during the course of the semester (does not include emails exchanged with Walther before the beginning of the semester in preparation and set-up of the class), some with individual students or work groups, some with the listserv, some with Walther. The pure number of emails speaks of the time invested, because I held regular office hours in addition to these email consultations and had to prepare class sessions.

Walther arranged the main aspects of the course, such as deciding on which readings to assign, lab manuals, and some lecture notes. However, though the teaching support I received from Walther was extremely helpful, it also almost doubled my preparation time. In addition to preparing my own class notes I now also had to work through his and try to integrate them. The students were exposed to a richer learning environment through this double-preparation. At

times I felt restricted by Walther's plans for a class session and not in control over my own class. At other times I couldn't have handled the overwhelming content aspect of readings and insights without the mentoring advice received by him. Almost all of Walther and mine conversation were held through CMC means, mainly email, but also through NetMeeting and First Class Group shareware. Maybe once a month we talked on the phone.

In addition to preparing class lecture material via CMC, Walther and I also graded students' papers together. I'm unsure if Walther initially intended to literally grade the papers together, i.e. through the use of MSWord tools. In the end, I preferred to print papers, which were submitted electronically, and graded them on paper. For the first short paper Walther graded first, then forwarded papers and comments to me and I added my comments. For the second short paper, roles were reversed. Interestingly, in both cases the first instructor graded a little harder (on average one third of a letter grade lower) than the second grader. The term papers were graded by me.

Climbing the Learning Curve. During the first class meeting Walther warned the students. He told them they would get frustrated with each other, and with the class. He told them there were two rules to obey to make this class a more pleasant experience for everyone involved. These rules were: 1) Communicate frequently and consistently. 2) Start early. Of course the students didn't believe him.

Group work in this class differed from other group projects. Group members really were interdependent. Members were not able to catch up with each other in the cafeteria or during the next class meeting. Each group always contained at least one member from the other campus, and this design caused many difficulties for students who did not follow the two rules quoted

above. Others got frustrated with non-communication, or silence they received through the Internet. Students repeatedly complained they didn't have enough time to complete group assignments, even though both Walther and I reminded them of group papers three to four weeks in advance. Seemingly, groups waited until the last weekend before beginning the project nevertheless. Projects via CMC always take longer to complete, simply because of the more asynchronous nature of the medium.

The following authentic email messages are but one example of a weekly assignment gone wrong. Eric, one of the coordinators for this week, got in touch with the other two coordinators early (Tuesday) during the week, six days before the synopsis, which the three were supposed to write together and for which they had had the material since Thursday, was due. On Sunday, about 24 before the due date, Josh began the following email exchange that quickly turned into a monologue by Eric:

Sunday, April 18, 1999, 11:50 AM

Hey Eric, this is Josh, Joe has sent me an email telling me that I am not on vacation and that I actually have to do the coordination with you guys. My sister had a baby girl this weekend so sorry if I missed anything. Please update me with anything you guys have not done and I will get to work on it. I will be home all day today studying so let me know so I can get on it. Thanks

Josh

Sunday, April 18, 1999, 4:09 PM

Well, I have been working on this all weekend I have not heard from anyone. Do you have all the reviews and critiques

Eric

Sunday, April 18, 1999, 7:47 PM

Josh and Andy it is quarter to eight and I am putting the paper together. I will be checking my email every hour to see if you have written me back otherwise I will finish the paper and send you a copy by 1:00 AM. I will check my e-mail before I go to work and if I don't get anything back from you two I will send in whatever I have. Write me as soon as you get this message and tell me what you are thinking.

Thanks

Eric

Sunday, April 18, 1999, 8:41 PM
Just checking in! Eric

Sunday, April 18, 1999, 9:42 PM
As you can tell I am getting frustrated, but the paper is getting done.
Eric

Sunday, April 18, 1999, 10:45 PM
Checking in again
Eric

Tuesday, April 20, 1999
So what happened with coordination for Topic 12?
Joe W.

Tuesday, April 20, 1999, 10:25 AM
Josh thought he was on vacation this time (so he says). He says he realized he was on vacation for the next topic (I thought this was the last one?) and that he was going to work on that one instead or something. He sent an 'apologetic' message out yesterday. If I still had a copy I would forward it to you.
Andy

Tuesday, April 20, 1999, 10:38 AM
Thanks for the follow-up. So did you work with Eric on this?
Joe W.

No, Andy had not worked with Eric, and neither had Josh. Through Andy's email message it becomes apparent though that he had been following the entire email exchange without ever dropping a note himself. In a normal group meeting or group project setting Eric would have known soon enough he would have to complete the assignment by himself, for example if Andy hadn't shown up. In the CMC context, Eric never even knew if Andy and Josh were reading his messages, if they were sick, lazy, or experiencing technological difficulties. Even though Eric was the only one receiving credit for this group assignment, he was understandably frustrated, as was Ben a few weeks later.

Ben and Susan from KU were supposed to write a term paper together with Dylan and Monica from RPI. One day before the original deadline and three days before the postponed deadline, Ben wrote the following email to me one night. It shows his frustration with the group project clearly, just as it shows his concern for completing this project via CMC in a quality way:

Thursday, April 29, 1999, 7:08 PM
Subject: FRUSTRATION!!!!
I just wanted to let you know that I am so mad and annoyed at my group again. I tried the persistent approach and getting them to respond was impossible. Susan has done everything asked and she deserves an A. Dylan and Monica have other projects to due and therefore Monica has avoided e-mailing anything to me since her original mailing of a half-ass response to the articles. Dylan is busy but at least writes, but refuses to do further work because he has another project due and is quite contempt to get a B, despite what the rest of the group things. Ulla, I just wanted to let you know that I am trying very hard at working with the situation but don't think it will be worthwhile. I am praying that my grade is not adversely effected because of a few people who choose to put this class last on their priority list. I just don't know what to do anymore or who to turn to. So, I am bitching to you hoping that I will be able to finish this paper and then enjoy one final class! Thanks for listening and offering any suggestions!
Ben

In both examples above, one party (first Eric, then Ben) followed the two initially given rules. They communicated early, and consistently, but their group members violated these rules. The result was frustration for the people following the rules. Similar events took place throughout the semester and it seemed that no matter how much we discussed problems, they continued. After the first short group paper the KU class assembled a list of helpful hints (See Appendix A), but since the same problems hindering effective performance persisted throughout the second group paper, apparently students were not able to apply their own good advice.

Finally, it is important to note that overall students felt positive about the class. While the class was going on, negative experiences seemed to linger in short term memory, but intensive debriefing and discussion at the end of the semester revealed that most students had

overall positive experiences and felt like they had learned a great deal far beyond regular university classes. They felt competent to interact in any computer environment and most felt that they had learned skills very valuable for future or present jobs. As their last assignment, all students were asked to post a message in the class group shareware folder in FirstClass. The message was supposed to have suggestions for future people taking this class. Though I don't know if Molly from RPI remembered the original two pieces of advice, I think her posting shows that Walther and I have reached at least one student, and sometimes reaching only one makes it worth the trouble.

Thursday, May 6, 1999, 9:22 AM

I have found that the best way to learn how to communicate effectively over the Internet is to do it yourself and do it often. When working on a group over the Internet, there is no such thing as 'too much e-mail.' I know that there have been times that I received an important e-mail from someone and I never responded to tell the person that I received it. It wasn't that I didn't want to respond to them, it was just assumed that they knew I had gotten it. It's the same thing when chatting...if someone says something funny in a channel I can laugh as much as I want IRL but I have to consciously add 'LOL' or 'ROFL' or something to that effect so that the other person knows how I am feeling. Not responding shows an ignorance on my part, although I know that I am not being ignorant on purpose. This is basically the most influential thing that affected me this semester. There were other small things, but like I said, the smaller things vary for each person.

Molly

PUTTING THEORY INTO APPLICATION

The previous section has given an insight into the computer-mediated classroom. The following sections will apply some underlying theory to the class as an application of computer-mediated collaborative learning, including media richness and identification issues.

Computer-Mediated Collaborative Learning. First, teaching a class on computer-mediated communication via computer-mediated communication requires a different learning

environment. The teacher does not stand out as the sole source of unchallenged information. Instead, learning becomes collaborative. Whipple (1987, 5) explains the collaborative learning model:

> Education does no consist merely of "pouring" facts from the teacher to the students as though they were glasses to be filled with some form of intellectual orange juice. Knowledge is an interactive process, not an accumulation of Trivial Pursuit answers; education at its best develops the students' abilities to learn for themselves... Another way to say this is that collaboration results in a level of knowledge within the group that is greater than the sum of the knowledge of the individual participants. Collaborative activities lead to emergent knowledge, which is the result of interaction between (not summation of) the understandings of those who contribute to its formation.

Collaborative learning definitely took place in our class, but the students needed some time to fully comprehend that it was "okay" to learn from each other. As Hiltz (1986, 96) explains, effective interactive computer use increases communication among group members, and between teacher and student. The greatest learning experiences in the class probably were unrelated to the content of the class. Instead, learning how to work CMC efficiently was the real challenge. Harasim (1990, 42-43) points to five attributes of online education that together characterize online education's unique mode. These five points are, (1) many-to-many communication; (2) place independence; (3) time independence (time-flexible, not atemporal); (4) text-based; and (5) computer-mediated interaction. Especially the third component, time independence, proved to be more a hindrance than a benefit in our class.

The benefits of time independent working are clear. They include, among others, the chance for everyone to contribute at their own pace, independent of communication anxiety or shyness, language problems, or problems with a certain topic. This self-paced learning (Althaus, 1997, 160) allows students to contribute what they want when they want, even in the middle of the night or after the more vocal participants have given their opinions.

However, drawbacks are also clear. Anxiety is a common reaction when no immediate response to ideas and comments is received in a group situation (Harasim, 1990, 47). In addition to anxiety, this non-communication can lead to frustration as shown above in Eric and Ben's cases, but also to flaming or negative prejudices. Watzlawick's "You cannot *not* communicate" stands no longer true in computer mediated communication. CMC, with exceptions of such technologies as video conferencing, takes away non-verbal cues. Silence from the other side can no longer be explained in the context, because there is no context. Communicating via CMC requires active participation from the student, requires to take initiative in communication (McComb, 1994, 165), but if students don't take initiative, many questions develop. Did the other participant read the email message? If so, what is their reason not to respond? Technology problems? Personal grudges? Laziness? Are they working on a reply? Users of communication technologies have become used to instant gratification much more than the theory of Uses and Gratifications could ever have foreseen (Blumler & Katz, 1974). Not receiving a reply to an email within a day or two is almost a personal insult. Even when receiving a reply, making a decision via CMC is often more time consuming because there are days of delay, instead of seconds in face-to-face communication (Harasim, 1990, 48).

Certain communication and interaction cues are missing in CMC, and thus, users tend to develop a sense of depersonalization when they are restricted to CMC. However, CMC is not necessarily impersonal. Computer effected depersonalization can result in defensive 'flaming,' or, at the other extreme, in the exchange of highly personal or emotional information. (Hiltz, 1986, 96). In our class this "flaming" took on the form of name calling. After the first short group paper, somehow the term "RPI slacker" suddenly developed on the KU Campus. It referred to the students at RPI who had not performed as expected and had left KU people with

the majority of the work, often without explanation. The PRI'lers soon countered with the term "KU slacker" when some KU students did not perform well. Interestingly, these terms were used only across universities, not within, even though the "slackers" stood out through the same acts of negligence. For instance, in the example above, Eric would have called Andy a "slacker," but not Josh. Andy and Josh both did not participate in the assignment, and the only difference was that Andy was at PRI, while Josh was at KU. That difference alone made Andy a "slacker."

Both published research (Hiltz, 1986) and experiences in this class have shown that students feel like they have learned more if they interacted more and felt more involved. However, social interaction online does not seem 'natural' at first (Hiltz, 1986, 100) as students have to get used to appropriate media first. The following paragraphs will discuss issues of media richness theory that became evident in this class.

Media Richness Theory. Media Richness Theory (Daft & Lengel, 1984, 1986) aligns communication media along an information richness continuum based on four criteria, (1) speed of feedback; (2) types of channels employed; (3) personalness of source; (4) and richness of language carried (Fulk et. al., 1987, 531). Media that are considered "rich" usually provide a large variety of communication cues and reduce levels of communication ambiguity. However, these media usually are also more costly both in effort and money investment and thus are considered less efficient than "lean" media in solving tasks that are less ambiguous to begin with. From richest to poorest, media face-to-face, telephone, electronic mail, personal written text (letters, memos), formal written test (documents, bulletins), and finally, formal numeric text (computer output) (Schmitz & Fulk, 1991, 489). E-mail was not originally in this list, but was added through research on Schmitz and Fulk's social influence model of technology use.

> The social influence (SI) model of technology use ... postulates that individuals' media perceptions and use are, in part, socially constructed. Media properties such as richness are posited to be subjective-influenced to some degree by attitudes, statements, and behaviors of others in the workplace. The SI model assumes that although relatively objective features of media do influence how individuals perceive and use media, these features are but a part of an equation that determines media perceptions and use. Furthermore, the perceptions of objective features may differ across individuals. Thus media and task features are variable, variably salient to individuals, and socially constructed. In contrast, the media richness model views richness as a relatively objective feature that is largely inherent in the medium. ... The SI model proposes that media choice making and media use (a) are subject to social influence, (b) may be subjectively or retrospectively rational, (c) are not necessarily efficiency motivated, and (d) may be designed to preserve or create ambiguity to achieve strategic goals" (Schmitz & Fulk, 1991, 490-491).

In the context of this class this means that the medium deemed "best" by the students was the one they perceived most useful as a group. The medium of choice may not have been the one selected by the teacher, but the group dynamics lead students to make this choice, as was the case when students continued to work through email despite consistent problems and despite encouragement to use groupware programs such as the class program FirstClass. Media choices are heavily influenced by two factors as explained by Fulk, et. al. (1987, 531), first accessibility, and second ease of use of the medium [and] experience with the medium. These two reasons were probably the most influential reasons for choosing email as the dominant communication medium in our classroom.

This class was not complete CMC dependent, because the KU students amongst themselves and the RPI students amongst themselves were able to interact FTF. As could be expected, group members within one campus tried to arrange as much as possible while talking FTF to each other, only then relying the results via the less rich CMC medium of choice to the other campus. Some groups tried to simulate FTF meetings by interacting in real time chats, but were still not as satisfied because immediacy was still delayed. Also, coordinating a chat session

was difficult timewise. Thus, the experiences in this class were congruent with the Media Richness Theory literature. Face-to-face communication was perceived richest and was most preferred. At times, a less rich medium such as email was preferred over a richer medium such as chat because participants as a group perceived the medium to be more effective. Group processes drove much of the interaction in this class. The next paragraphs will discuss identification issues that arose during and influenced group work.

Identification Issues. In our class, students were assigned to work together in changing groups. As Wellman (1997, 180) states, a group is simply a kind of social network with extremely tight bounded ties. Almost all network members are directly linked with each other. Under certain instances, groups can even evolve into communities, but this was not the case in our class. However, identification issues played a great role, such as identification with the university, the class, the group, or even the project. In the context of virtual organizations Wiesenfeld et. al. (1998) state that "identification may be essential to sustaining virtual organizations because it facilitates critical organizational functions that pose a particular challenge in virtual contexts, such as: a) coordination and control of dispersed organizational actors; b) work group functioning; c) encouragement of extra-role helping behaviors; and d) retention of valuable employees." If the university and/or the class are seen as the organization and the students as the employees, this statement applies to class events.

"Coordination and control of dispersed organizational actors" was achieved when students within their work groups selected a coordinator who was responsible for motivating each group member, collecting work, and reassuring each member would stay in contact. It was mostly these coordinators who became frustrated as described above.

"Work group functioning" depended on identification with the group and the project at hand. Communication, especially frequent communication, helps individuals to identify with the group because group members begin to share their subjective perspectives and begin to feel like active participants rather than observers (Wiesenfeld et. al., 1998). When Monica and Dylan from the above example decided to set their priorities on tasks outside the group task, Ben and Susan felt group norms had been violated while Monica and Dylan probably never had identified with the group or its norms.

"Encouragement of extra-role helping behaviors" manifested itself in exchanging personal information and establishing relationships before turning a group's focus onto the task. In the list of helpful hints (See Appendix A) the students had suggested that short, concise, polite, task related email would be most beneficial to accomplishing a goal. As the semester progressed most groups changed this perception, either consciously or unconsciously. Repeatedly students reported that they had to exchange personal information first, maybe read a whole page about someone's weekend in emails before that person began to give task related information. Obviously, those students tried to make CMC as much FTF as possible, supplying much information they would have given in a personal meeting. In the CMC context this was not necessary, but "venting" helped students to feel closer to their group members and work more efficiently in the long run.

Finally, "retention of valuable employees" also was an identification factor in our class. Certain students soon developed either positive or negative reputations. When work groups changed, everyone wanted to "retain" a good co-worker and avoid a worker or student with a negative reputation. Identification here was ascribed, not assumed.

School identification manifested itself in the terms "we" against "RPI slackers" or vice versa, as discussed above. Wiesenfeld et. al. (1998) see identification as a type of glue tying people in virtual settings together. This "glue" certainly expanded from the online environment into real life, when some of the class members began to build friendships. They explained this saying that they had gotten to know each other via CMC more personally than they would have in other classes through only FTF contact. Most likely, the students simply were forced to interact more with each other in this class than in other traditional classes. Identification with some fellow students was a natural result of being exposed to the same uncommon class setting.

CONCLUDING REMARKS

When Eric voiced his concern that this class could all be one great illusion, one great research setting, his fellow students laughed, but laughed uneasily. Some probably considered his remark to be a legitimate possibility. None of the KU students had had a similar CMC experience before. The notion of working with people they had never seen, never talked to, and had no proof of their real existence was new to these undergraduates. They mastered all their challenges. At times there were bumps in the road, but the real learning took place somewhere in cyberspace, when students learned how to perform effective computer-mediated communication via computer-mediated communication.

Personally, I have learned as much from my students as they have learned from the class setting. At times I was only half a step further along than they were. At other times I felt like I was Merlin, the wise bearer of all secrets. Teaching this class via CMC while not being fully in control over it was a challenge in itself, but I have learned from it too. Just as my students now think they can take on any CMC task in future jobs, I know I can take on teaching any traditional

or non-traditional computer related class. The goal of any communication, whether computer-mediated or face-to-face, is to create shared meaning (Sproull & Kiesler, 1991), and we have reached that goal.

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Appendix A

Lessons learned from Group Project 1 – Assembled by the KU class

Things that worked well:	Things that could help to make it work better:
- real time chat - start early - set group work standard - set your own deadline - continuous work - glance over ALL readings, focus on YOUR assigned readings - one person takes control as the coordinator - positive feedback (when appropriate) within group - short, concise, polite, task related email	- meet your own deadline - encourage coordinating within university, THEN across university - keep an eye on the "big picture" - be adaptable (time & task) - have consistent email contact - decide/assign one coordinator - use FirstClass, NetMeeting, MS Editing Tools instead of only email
Things that would NOT help: - more time - big groups - software trouble/no access - negative feedback	